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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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INTELLECTUAL PROPERTY ADMINISTRATION
FORT COLLINS, CO 80527-2400

EXAMINER

ANGEBRANNDT, MARTIN J

ART UNIT	PAPER NUMBER
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1795

NOTIFICATION DATE	DELIVERY MODE
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07/21/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/656,503	Applicant(s) DESSAUER, ROLF	
	Examiner Martin J. Angebrannt	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 April 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 and 38-41 is/are pending in the application.
- 4a) Of the above claim(s) 26-32 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25, 33-36 and 38-41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-25, 33-36 and 38-41 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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1. The response of the applicant has been read and given careful consideration. Responses to the arguments of the applicant are presented after the first rejection to which they are directed.
2. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-25, 33-36 and 38-41, drawn to a composition including a phthalocyanine dye precursor, binder and IR absorber, the composition coated as a layer and a system including the medium, classified in class 430, subclass 270.15.
 - II. Claims 26-32, drawn to a methods of recording in a composition including a phthalocyanine dye precursor, binder and IR absorber coated as a layer using a laser, classified in class 430, subclass 269.

The inventions are distinct, each from the other because of the following reasons:

3. Inventions group I and group II are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product and the IR laser can be used to write information into other layers not including the composition set forth in the claims noting that the composition can be used to form a label See MPEP § 806.05(h). In the instant case the composition may be imaged using a thermal head or the like to cause the heating.
4. Because these inventions are independent or distinct for the reasons given above and have acquired a separate status in the art in view of their different classification, restriction for examination purposes as indicated is proper.

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5. Because these inventions are independent or distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

6. **During a telephone conversation with W Bradley Haymond on may 4,2006 a provisional election was made with traverse to prosecute the invention of group I, claims 1-25 and 33-38. Affirmation of this election must be made by applicant in replying to this Office action. Claims 26-32 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.**

7. **This application contains claims 1-25,33-36 and 38 (with 39-41 added) drawn to an invention nonelected with traverse in Paper No. of 8/14/06. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.**

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1, 4-10, 12-15 and 39-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over RD 39219 and JP 58-008357, in view of Kawauchi '895 and/or Satake et al. 816.

RD 39219 teaches a 1,3-diiminoisoindoline and/or related phthalocyanine precursors combined with a thermally cleavable adduct capable of generating a reducing phenolic

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compound when heated and a near IR absorbing dye. Suitable 1,3-diiminoisoindoline are disclosed in formula D111, which when reacted forms a metal free phthalocyanine. If desired the corresponding metallized phthalocyanine can be produced by the inclusion of a metal salt, such as copper acetate. The reaction to form the phthalocyanine is more efficient in the presence of a reducing agent. The use of an adduct which releases hydroquinone upon heating to 150 degrees C is disclosed (page 2). The use of a dye as NIR absorber is disclosed. The addition of binders, thermal stabilizers, UV stabilizers, surfactants or the like is disclosed. (page 2).

JP 58-008357 in example 1 uses 1-amino-3-iminoisoindolene, Cu-hydroxyethylsarcosine, hydroquinone and polyvinyl butyral, which when heated to 120 degrees C forms a blue Cu phthalocyanine (col. 5). Example 2 uses acetic acid as the reducing agent and ethyl cellulose as the binder and a cobalt monoethanol amine complex as the metal source and changes color at 150 degrees C (col 5-6). Example 3 uses a Ni glycine salt as the metal source, urea, benzophenone and polyvinyl alcohol and changes color at 150 degrees C (col 6). The compositions disclosed all are thermographic and change color when heated at 100-150 degrees C (col 3).

Kawauchi '895 describes the use of light to heat conversion means using infrared absorbing dyes, such as benzo(thio)pyrylium methine, naphthoquinone, squarilium, dihydropyrimidine, pyrilium, cyanine in amounts of 0.5 to 15%. [0087-0090]. These are used in forming printing plates. Notes dye 2, which is the dyes recited in claims 21.

Satake et al. 816 teach photothermorecording media, where the IR laser is used as a recording light source. Useful light absorbers are polymethine, cyanine, squarylium, metal complexes, chroconium, metal dithiol complexes, pyrilium, naphthoquinone dyes and the like

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(55/54-56/23). These are described as used with dye precursors and their developers. The use of various binders including is disclosed (54/11-33). The addition of the IR absorber allow the thermal recording sheet to be recorded optically. (55/41-46). The use of a thermal printer (60/34-35) or a laser plotter with a 30 mW 830 nm laser (48-56) is disclosed, The diffraction limited spot size for an 830 nm laser is ~ 0.83 microns/0.45 which yields 1.8 microns. The absorber is added in an amount of 4% in example 71, which generates a color.

It would have been obvious to one skilled in the art to modify the teachings of RD 39219 by using other metal sources, such as Cu- hydroxyethylsarcosine, known to react with iminoisoindolines to form metallized phthalocyanine as evidenced by JP 58-008357, in place of those disclosed by RD 39219 with a reasonable expectation of forming a useful photothermographic recording material and to use $\sim 4\%$ of the IR absorber based upon the direction in Kawauchi '895 to amounts of 0.5-15% or the 4% of the IR absorber by Satake et al. '816 as neither of RD 39219 and JP 58-008357 teach an amount. Further it would have been obvious to use the other reducing agents, such as hydroquinone or ascorbic acid, and the binders, such as ethyl cellulose, disclosed by JP 58-008357 in the medium in place of those exemplified by RD 39219 with a reasonable expectation of forming a functional photothermographic recording medium which colors at temperatures of less than 150 degrees. Further, it would have been obvious to use other known IR absorbing dyes, as light to heat conversion means in place of the squarylium dye disclosed by RD 39219 with a reasonable expectation of forming a useful photothermographic medium based upon the disclosure of equivalence of the IR absorbers disclosed by Kawauchi '895 and/or Satake et al. 816.

The added language describes the sensitivity of the composition. The prior art (in the cited text) and the instant application in the prepub at [0042] all discuss the use of compositions where the IR absorber is present in amounts of ~4 %. This amount, which is rendered obvious by the prior art, is held to inherently sensitize the composition within the bounds of the claims. The language added to the claims merely describes the sensitivity of the medium as these claims are not direct to the method of use or the apparatus, therefore the applicant's arguments that the specific laser, laser power and spot size needs to be taught in the references is incorrect.

With respect to claims 39-41 these claims are to the medium, not the system and so does not serve to distinguish over the prior art for the reasons above.

The RD 39219 and JP 58-008357 are both relied upon and are not used in the alternative. These references are very evenly matched in terms of which is the best, hence the wording of the rejection. The examiner notes that the precursors relied upon from US 2,772,284 (see prepub at [0034]) are disclosed as being converted to the phthalocyanine by heating at 200 degrees for fifteen minutes (4/38-45 of 2772284). , while that of the prior art applied undergoes phthalocyanine dyes formation at 100-150 degrees as so would be expected to undergo the reaction under the influence of laser induced heating under the recited conditions, indeed they might be more sensitive than the disclosed composition. The examiner notes that the amount of heat discussed as applied by the thermal head is 200-300 degrees C (50/42), and color is not developed at 150 degrees C (50/40) and so to cause color formation the effect of the laser heating would have to be the same as that of the thermal head. Therefore the position of the examiner regarding the amount of heating

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caused by the lasers irradiation is sound, noting that the compositions of RD 39219 and JP 58-008357 become colored at 100-150 degrees C.

The applicant argues that the compositions of the instant specification become colored at 150 degree C. This is not recited in the claims and so carries no weight. Further, the applicant fails to appreciate that the claims seek coverage for embodiments broader than those of the examples and so the argument is not commensurate with the scope of coverage sought. The applicant's arguments also fail to appreciate that the amount of IR absorber also plays a part in the heating. The ranges in the instant specification are 0.1 to 10 wt %. (the examples uses almost 10%). 4% is exemplified by Satake et al. 816 and the range 0.5 to 15% is taught by Kawauchi '895. Therefore there is a reasonable expectation that the addition of the IR absorbers in the ranges recited in the Kawauchi '895 and/or Satake et al. 816 would heat the composition to a temperature sufficient to color them. If the applicant can show that the inventive compositions color at unexpectedly lower temperatures in declaration evidence and amends the claims to be commensurate with the showing (ie take the inventive composition and heat it with a calibrated thermal head, rather than using light) this could be considered as address then the issue of sensitivity, which the applicant seems to be advancing as the benefit. The examiner notes that the Perkins et al. '004 and Fleming et al. '704 show similar temperatures for the color formation to the 150 degrees C of RD 39219 and JP 58-008357. The applicant's argument also fails to appreciate the direction to an IR dye in RD 39219. The US 2772284 was cited by the applicant and is identified on page 10 of the instant specification. The examiner points to it (through the instant specification or the prepub thereof) to establish that the argued position is not congruent with the facts of the applicant's own specification. It would appear from the facts in the file that

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the inventive composition is less sensitive than those of the prior art, but perhaps this is due to the lack of a reducing agent in the example composition or that of US 2772284. The rejection stands.

10. Claims 1,4-10,12-15,17,20-22,24,25 and 39-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over RD 39219 and JP 58-008357, in view of Fleming et al. '536 and Anderson et al. WO 03/032299.

Fleming et al. '536 teach an optical recording medium comprising a writable CD. The substrates may be grooved (3/44-67). The recording layer includes a leuco dyes, which can be thermally reacted to form a dye (4/49-59). The sensitizing dye is one, which absorbs at the desired wavelength and is present in the amount of more than 5% (4/39-46). The addition of a thermal acid generator is disclosed. (16/32+). The exposure uses a 708 nm laser which has a power of 4-16 mW and the duration of the exposure of a point by the 3.56 micron the laser spot when the medium is rotated at 2.8 m/s is 1.2 microseconds.

Anderson et al. WO 03/032299 teach the writing of label data on the topside of and optical disk with respect to figure 3. The use of photothermal recording layers comprising leuco dyes which are reduced under the influence of heat provided by IR light sources (6/29-12/11). Useful near IR absorbers are disclosed and include cyanine dyes and the like (12/12-17/17).

It would have been obvious to one skilled in the art to modify the teachings of RD 39219 by using other metal sources, such as Cu- hydroxyethylsarcosine, known to react with iminoisoindolines to form metallized phthalocyanine as evidenced by JP 58-008357, in place of those disclosed by RD 39219 with a reasonable expectation of forming a useful photothermographic recording material and to use ~ 5% of the IR absorber based upon the

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direction in Fleming et al. '536 as neither of RD 39219 and JP 58-008357 teach an amount.

Further it would have been obvious to use the other reducing agents, such as hydroquinone or ascorbic acid, and the binders, such as ethyl cellulose, disclosed by JP 58-008357 in the medium in place of those exemplified by RD 39219 with a reasonable expectation of forming a functional photothermographic recording medium which colors at temperatures of less than 150 degrees and to apply this composition to an optical disk substrate as is taught by each of Fleming et al. '536 and Anderson et al. WO 03/032299 with a reasonable expectation of the resulting layer being useful for recording digital data as taught by Fleming et al. '536 or providing a means for labeling the CDs as taught by Anderson et al. WO 03/032299 based upon these references establishing the use of leuco dyes based compositions as either a recording layer or as a label forming layer.

The rejection stands for the reasons above and the examiner notes that the laser may be used to record information on the label (ie in the recited composition) or in a different recording layer. Not until the method claims are prosecuted can the two be tied together.

The rejection based upon Anderson et al. '708 has been withdrawn based upon the common assignation. Both Fleming et al. '536 and Anderson et al. WO 03/032299 teach leuco dye compositions in optical recording disks. The claims do not recite a separate recording layer from the leuco dye recited and so reading the claims to limit a label for all the disk embodiments.

Fleming et al. '536 teaches less than 5% of the IR absorber. The rejection stands.

11. Claims 1,4-15,17,20-25 and 39-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over RD 39219 and JP 58-008357, in view of Fleming et al. '536 and Anderson et al. WO 03/032299, in view of Boggs et al. '884.

Boggs et al. '884 teaches a leuco dye coloring composition in response to heat (see example 1). The use of IR absorbers of more than 700 nm, particularly 850 nm. (20/65-21/33). Useful binders, including cellulose acetate butyrate, polymethyl methacrylate and polyvinyl butyral are disclosed (22/43-59).

To address other embodiments bounded by the claims, but not rendered obvious above, the examiner cites Boggs et al. '884 and holds that it would have been obvious to modify media rendered obvious by the combination of RD 39219, JP 58-008357, Fleming et al. '536 and Anderson et al. WO 03/032299 by using other binders known to be useful in leuco dye coloring compositions, such as cellulose acetate butyrate, polymethyl methacrylate or polyvinyl butyral taught by Boggs et al. '884 with a reasonable expectation of forming a useful/functional leuco dyes composition.

The rejection stands for the reasons above as no further arguments were directed at this line of rejection.

12. Claims 1-10,12-22,24,25 and 39-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over RD 39219 and JP 58-008357, combined with Fleming et al. '536 and Anderson et al. WO 03/032299, in view of either Perkins et al. '004 or Fleming et al. '704.

Perkins et al. '004 teach phthalocyanine precursors, where the precursor contains more than 4 phthalonitrile units per molecule and has no tinctoral (coloring) qualities in itself, but which yield the corresponding colored phthalocyanine upon heating or treatment with reducing agents. (1/20-25). These decompose at 120 degrees C or less in the presence of a reducing agent, such as ascorbic acid (6/39-45).

Fleming et al. '704 teaches leuco phthalocyanine (phthalocyanine precursors) which are reacted with naphthoquinones and heated at 150 degrees C for three seconds to yield the corresponding Cu phthalocyanines (45/52-57) See also 32/48-33/12 which describes the use of reducing agents. The use of binders is also disclosed.

In addition to the basis above, it would have been obvious to modify the combination of RD 39219 and JP 58-008357, Fleming et al. '536 and Anderson et al. WO 03/032299 as set forth above by the use of other phthalocyanine precursors known to undergo thermal decomposition in the presence of reducing agents, such as ascorbic acid, such as those phthalocyanine precursors taught by Perkins et al. '004 or Fleming et al. '704 with a reasonable expectation of forming a useful photothermal recording layer.

There are no further comments beyond those addressed above as no further arguments were presented.

13. Claims 1-10,12-22,24,25,33-36 and 38-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over RD 39219 and JP 58-008357, combined with Fleming et al. '536 and Anderson et al. WO 03/032299 and either Perkins et al. '004 or Fleming et al. '704, further in view of Gravsteijn et al. '811 and Melles Griot Catalog (1995/96) pp. 49-4 through 49-5.

Gravsteijn et al. '811 teach the use of 800 nm lasers with powers of 10 mW (8/24-36). The use of optical recording media with squarilium dyes with lasers in the 750-850 nm range and the formation of pits having 10 microns sizes is disclosed (4/40-68)

Melles Griot Catalog (1995/96) pp. 49-4 through 49-5 teaches diode lasers operating in the 750 and 780 nm range with powers of 1-180 mW output.

It would have been obvious to one skilled in the art to modify the teachings RD 39219, JP 58-008357, Fleming et al. '536 and Anderson et al. WO 03/032299, combined with either Perkins et al. '004 or Fleming et al. '704 as discussed above by using other wavelengths based upon the disclosure by Gravsteijn et al. '811 that the NIR squarilium dyes absorbs in the 750-800 nm range and to use commercially available lasers, such as those in the Melles Griot Catalog (1995/96) pp. 49-4 through 49-5 with higher powers to allow the writing of information in less time as exposure is power multiplied by time.

There are no further comments beyond those addressed above as no further arguments were presented.

14. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin J. Angebrannt whose telephone number is 571-272-1378. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Martin J Angebranndt/
Primary Examiner, Art Unit 1795

Martin J Angebranndt
Primary Examiner
Art Unit 1795

7/17/2008